

# Notice of Allowability

Application No.

10/065,450

Examiner

Ruth S. Smith

Applicant(s)

TOTH ET AL.

Art Unit

3737

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed 5/24/05.
2. ☒ The allowed claim(s) is/are 38,41-44 and 48-69.
3. ☒ The drawings filed on 18 October 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 6-2-05
7. ☒ Examiner's Amendment/Comment
8. ☐ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

An extension of time under 37 CFR 1.136(a) is required in order to make an examiner's amendment which places this application in condition for allowance. During a telephone conversation conducted on June 2, 2005, Mr. Wilkinson requested an extension of time for one MONTH(S) and authorized the Director to charge Deposit Account No. 070845 the required fee of \$120.00 for this extension and authorized the following examiner's amendment. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows: In the specification, in the amendment to the first paragraph of the specification, filed 10/23/02, --,now US Patent No. 6,680,995,---has been inserted after "2001";

the claims have been amended as seen in the following attachment:

#### Claims 1-37 (Canceled)

38. (Currently Amended) A method of generating an artifact score, the method comprising:

acquiring imaging data of a subject, the imaging data including a plurality of pixels;

partitioning the plurality of pixels into a first set and a second set, wherein the step of partitioning includes the step of generating a mask from the plurality of pixels and wherein the step of generating a mask further comprises the step of identifying a set of pixels within a range of an expected uniform material value;

determining an artifact index (AI), wherein the step of determining includes:

initializing the first set to a base value;

comparing the first set to the second set;

squaring each pixel of the second set of pixels;

summing the squared pixels;

dividing the summation by a mask pixel count to yield a quotient;

and

modifying the quotient by a scalar, wherein the scalar is determined by statistically correlating trained observers responses to a reconstructed image of the imaging data; and

visually conveying the HAI.

39. Canceled.

40. Canceled.

41. (Currently Amended) The method of claim 40-38 wherein the range is  $\pm$  40 CT numbers.

42. (Currently Amended) The method of claim 40-38 further comprising isolating a region of the plurality of pixels absent visual artifacts.

43. (Currently Amended) The method of claim 40-38 further comprising the step of determining a numeric mean of the set of pixels within the range.

44. (Previously Presented) The method of claim 43 further comprising the step of subtracting the mean from each pixel of the plurality of pixels.

45. Canceled.

46. Canceled.

47. Canceled.

48. (Currently Amended) The method of claim ~~46~~38 wherein the step of determining a ~~helical~~helical artifact index includes the step of determining a likelihood of artifact presence in the reconstructed image by comparing the modified quotient to an artifact scale.

49. (Previously Presented) The method of claim 48 wherein the artifact scale has a maximum of ten and a minimum of one.

50. (Previously Presented) The method of claim 38 further comprising the step of filtering the imaging data with a two-dimensional array.

51. (Previously Presented) The method of claim 50 wherein the filtering two dimensional array includes a Hanning kernel.

52. (Previously Presented) The method of claim 50 wherein the filtering two dimensional array has a five by five orientation.

53. (Previously Presented) The method of claim 38 wherein the base value is a whole number.

54. (Previously Presented) The method of claim 53 wherein the base value is zero.

55. (Previously Presented) The method of claim 38 wherein the subject includes a phantom designed to simulate an anatomical region of a patient.

56. (Currently Amended) The method of claim ~~38-55~~ wherein the step of acquiring the imaging data includes the step of acquiring CT imaging data of the phantom using a CT scanner.

57. (New) A method of generating an artifact score, the method comprising:  
acquiring imaging data of a subject, the imaging data including a plurality of pixels;

partitioning the plurality of pixels into a first set and a second set,  
wherein the step of partitioning includes the step of generating a mask from the plurality of pixels and wherein the step of generating a mask further comprises the step of identifying a set of pixels within a range of an expected uniform material value;

determining an artifact index (AI), wherein the step of determining includes:

initializing the first set to a base value;

comparing the first set to the second set;

squaring each pixel of the second set of pixels;

summing the squared pixels;

dividing the summation by a mask pixel count to yield a quotient;

modifying the quotient by a scalar; and

determining a likelihood of artifact presence in the reconstructed

image by comparing the modified quotient to an artifact scale; and

visually conveying the AI.

58. (New) The method of claim 57 wherein the artifact scale has a maximum of ten and a minimum of one.

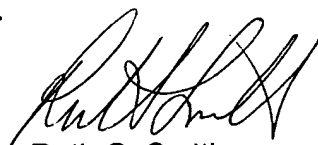
59. (New) The method of claim 57 further comprising the step of filtering the imaging data with a two-dimensional array.
60. (New) The method of claim 59 wherein the filtering two dimensional array includes a Hanning kernel.
61. (New) The method of claim 59 wherein the filtering two dimensional array has a five by five orientation.
62. (New) The method of claim 57 wherein the base value is a whole number.
63. (New) The method of claim 62 wherein the base value is zero.
64. (New) The method of claim 57 wherein the subject includes a phantom designed to simulate an anatomical region of a patient.
65. (New) The method of claim 64 wherein the step of acquiring the imaging data includes the step of acquiring CT imaging data of the phantom using a CT scanner.
66. (New) The method of claim 57 wherein the range is  $\pm 40$  CT numbers.
67. (New) The method of claim 57 further comprising isolating a region of the plurality of pixels absent visual artifacts.
68. (New) The method of claim 57 further comprising the step of determining a numeric mean of the set of pixels within the range.
69. (New) The method of claim 68 further comprising the step of subtracting the mean from each pixel of the plurality of pixels.

Art Unit: 3737

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ruth S. Smith whose telephone number is 571-272-4745. The examiner can normally be reached on M-F 7:30 AM-4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ruth S. Smith  
Primary Examiner  
Art Unit 3737

RSS